

Abstract

In a test and measurement instrument having M signal input channels, individual samples representing a signal from each channel are compared to mask pixels to detect non-compliance with a given specification. Initial mask and waveform positions on a display screen of the oscilloscope are determined by an AUTASET TO MASK function. Comparison of mask pixels and waveform pixels to detect collision between a waveform pixel and a mask pixel (i.e., a mask violation) is performed substantially in real time, as the pixels are being composited into a raster memory by a rasterizer. Acquisitions are performed simultaneously and repeatedly. Acquired waveforms from all M signal input channels are sequentially compared to the mask and drawn on screen during the following acquisition period. Thus, M waveforms can be tested for compliance with a telecom mask substantially within a single acquisition time period. A system employing a multiplexer can select M channels at a time from a group of N channels to decrease the time required to test all N channels. The intensity of pixels representing samples violating the mask is preferably increased for better visibility against the telecom mask.

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